

In the Specification

Please delete the paragraph beginning on Page 5, line 19, and ending on page 6, line 2, and please replace with the following new paragraph beginning on Page 5, line 19, and ending on page 6, line 2.

FIG. 1 shows a cut away side view of the reaction vessel 14 showing a stack of vials 24 progressing through longitudinal reaction chamber 32. FIG. 3 shows an electronic heating jacket 102 encompassing chamber 32. FIG. 3 further shows jacket 102 in combination with a structure for controlling temperature conditions within the chamber 32. The structure includes insulation 104 interposed within jacket 102, a high precision temperature measuring device 106, and a feedback heat controller 108. Examples of the high precision temperature measuring device include a thermocouple, thermistor, or platinum resistance thermometer. Heat controller 108 is attached to the interior of chamber 32 by leads 110. Electronic heating jacket 102 is shown with feedback control via temperature measuring device 106, which can be a probe, and heat controller 108. Other combinations can be used to control the temperature in chamber 32 such as a vapor heating jacket with pressure control, so long as the temperature can be controlled to within $\pm 2^{\circ}\text{C}$, desirably within $\pm 1^{\circ}\text{C}$ and preferably within $\pm 0.5^{\circ}\text{C}$.

Please delete the paragraph beginning on Page 6, line 15, and ending on page 6, line 27, and please replace with the following new paragraph beginning on Page 6, line 15, and ending on page 6, line 27.

Each thin film formulation is deposited into a vial 24 to provide an array of reaction vials 24. Vial 24 is preferably formed of a rigid material that is chemically inert in the reaction environment. An example of an acceptable vial for many reactions is a glass vial. When dealing with liquids with low vapor pressures or with lengthy reactions, it may be desirable to provide a covering, such as a selectively permeable cap or a septum (not shown) incorporating a feed tube or needle disposed such that a gas is allowed to move freely into and out of vial 24 while depletion of liquid by evaporation is minimized. This arrangement allows an external pressure source to act upon the gas in the reactant environment while evaporation of liquid is limited. In most applications, suitable materials for the cap include polytetrafluoroethylene (PTFE) and expanded PTFE. A suitable cap for use with 2 ml glass vials is "Clear Snap Cap, PTFE/Silicone/PTFE with Starburst, 11mm", part no. 27428, available from Supelco, Inc., Bellefonte, Pennsylvania.

Page 39, insert the following centered heading at top of page:


TABLE 12

Page 39, insert the following successive column headings over the columns, left to right:

Block
M1
M1 amt.
M2
M2 amt.
CS
CS amt.
Pressure
Temperature
Time
TON

Pages 45-47, Table 14 after the table heading, cancel entirely and replace by the following.

Source	DF	Seq SS	Adj SS	Adj MS	F Ratio	P	Significant at P<0.01
M1 amt	1	16412	16412	16412	0.201	0.654	
M2 amt	1	77926	77926	77926	0.954	0.329	
CS amt	1	33586	33586	33586	0.411	0.522	
Pressure	1	4616039	4616039	4616039	56.526	0.000	YES
Temperature	1	216802139	216802139	216802139	2654.854	0.000	YES
Time	1	31205785	31205785	31205785	382.131	0.000	YES
M1	1	22404811	22404811	22404811	274.358	0.000	YES
M2	1	182205	182205	182205	2.231	0.136	
CS	1	3702	3702	3702	0.045	0.832	
M1 amt*M2 amt	1	27036	27036	27036	0.331	0.565	
M1 amt*CS amt	1	58292	58292	58292	0.714	0.399	
M1 amt*Pressure	1	61467	61467	61467	0.753	0.386	
M1 amt*Temperature	1	26926	26926	26926	0.330	0.566	
M1 amt*Time	1	110415	110415	110415	1.352	0.246	
M1 amt*M1	1	34335	34335	34335	0.420	0.517	
M1 amt*M2	1	232680	232680	232680	2.849	0.092	



M1 amt*CS	1	260446	260446	260446	3.189	0.075	
M2 amt*CS amt	1	79627	79627	79627	0.975	0.324	
M2 amt*Pressure	1	341447	341447	341447	4.181	0.042	
M2 amt*Temperature	1	477	477	477	0.006	0.939	
M2 amt*Time	1	125869	125869	125869	1.541	0.215	
M2 amt*M1	1	14190	14190	14190	0.174	0.677	
M2 amt*M2	1	81553	81553	81553	0.999	0.318	
M2 amt*CS	1	8125	8125	8125	0.099	0.753	
CS amt*Pressure	1	33749	33749	33749	0.413	0.521	
CS amt*Temperature	1	295416	295416	295416	3.618	0.058	
CS amt*Time	1	7438	7438	7438	0.091	0.763	
CS amt*M1	1	132568	132568	132568	1.623	0.203	
CS amt*M2	1	37280	37280	37280	0.457	0.500	
CS amt*CS	1	23702	23702	23702	0.290	0.590	
Pressure*Temperature	1	40272	40272	40272	0.493	0.483	
Pressure*Time	1	38	38	38	0.000	0.983	
Pressure*M1	1	253770	253770	253770	3.108	0.079	
Pressure*M2	1	260899	260899	260899	3.195	0.075	
Pressure*CS	1	11954	11954	11954	0.146	0.702	
Temperature*Time	1	33291520	33291520	33291520	407.672	0.000	YES
Temperature*M1	1	43430	43430	43430	0.532	0.466	
Temperature*M2	1	94767	94767	94767	1.160	0.282	
Temperature*CS	1	90412	90412	90412	1.107	0.293	
Time*M1	1	1491	1491	1491	0.018	0.893	
Time*M2	1	93605	93605	93605	1.146	0.285	
Time*CS	1	76043	76043	76043	0.931	0.335	
M1*M2	1	77799	77799	77799	0.953	0.330	
M1*CS	1	169760	169760	169760	2.079	0.150	
M2*CS	1	407136	407136	407136	4.986	0.026	
M1 amt*M2 amt*CS amt	1	361079	361079	361079	4.422	0.036	
M1 amt*M2 amt*Pressure	1	21432	21432	21432	0.262	0.609	
M1 amt*M2	1	271	271	271	0.003	0.954	
amt*Temperature							
M1 amt*M2 amt*Time	1	13991	13991	13991	0.171	0.679	
M1 amt*M2 amt*M1	1	281433	281433	281433	3.446	0.064	
M1 amt*M2 amt*M2	1	1	1	1	0.000	0.997	
M1 amt*M2 amt*CS	1	116073	116073	116073	1.421	0.234	
M1 amt*CS amt*Pressure	1	114627	114627	114627	1.404	0.237	
M1 amt*CS	1	466	466	466	0.006	0.940	
amt*Temperature							
M1 amt*CS amt*Time	1	69157	69157	69157	0.847	0.358	
M1 amt*CS amt*M1	1	164860	164860	164860	2.019	0.156	
M1 amt*CS amt*M2	1	14698	14698	14698	0.180	0.672	
M1 amt*CS amt*CS	1	334131	334131	334131	4.092	0.044	
M1	1	235	235	235	0.003	0.957	
amt*Pressure*Temperature							

M1 amt*Pressure*Time 1 167809 167809 167809 2.055 0.153
 M1 amt*Pressure*M1 1 8172 8172 8172 0.100 0.752
 M1 amt*Pressure*M2 1 4377 4377 4377 0.054 0.817
 M1 amt*Pressure*CS 1 6356 6356 6356 0.078 0.780
 M1 1 67161 67161 67161 0.822 0.365
 amt*Temperature*Time
 M1 amt*Temperature*M1 1 194664 194664 194664 2.384 0.123
 M1 amt*Temperature*M2 1 569 569 569 0.007 0.934
 M1 amt*Temperature*CS 1 11 11 11 0.000 0.991
 M1 amt*Time*M1 1 6489 6489 6489 0.079 0.778
 M1 amt*Time*M2 1 30862 30862 30862 0.378 0.539
 M1 amt*Time*CS 1 163612 163612 163612 2.004 0.158
 M1 amt*M1*M2 1 77397 77397 77397 0.948 0.331
 M1 amt*M1*CS 1 11421 11421 11421 0.140 0.709
 M1 amt*M2*CS 1 59409 59409 59409 0.727 0.394
 M2 amt*CS amt*Pressure 1 6344 6344 6344 0.078 0.781
 M2 amt*CS 1 0 0 0 0.000 1.000
 amt*Temperature
 M2 amt*CS amt*Time 1 70019 70019 70019 0.857 0.355
 M2 amt*CS amt*M1 1 89887 89887 89887 1.101 0.295
 M2 amt*CS amt*M2 1 120523 120523 120523 1.476 0.225
 M2 amt*CS amt*CS 1 8479 8479 8479 0.104 0.747
 M2 1 190090 190090 190090 2.328 0.128
 amt*Pressure*Temperature
 M2 amt*Pressure*Time 1 14716 14716 14716 0.180 0.671
 M2 amt*Pressure*M1 1 7373 7373 7373 0.090 0.764
 M2 amt*Pressure*M2 1 16357 16357 16357 0.200 0.655
 M2 amt*Pressure*CS 1 35027 35027 35027 0.429 0.513
 M2 1 26831 26831 26831 0.329 0.567
 amt*Temperature*Time
 M2 amt*Temperature*M1 1 626 626 626 0.008 0.930
 M2 amt*Temperature*M2 1 94448 94448 94448 1.157 0.283
 M2 amt*Temperature*CS 1 1212 1212 1212 0.015 0.903
 M2 amt*Time*M1 1 77055 77055 77055 0.944 0.332
 M2 amt*Time*M2 1 6233 6233 6233 0.076 0.782
 M2 amt*Time*CS 1 337817 337817 337817 4.137 0.043
 M2 amt*M1*M2 1 38653 38653 38653 0.473 0.492
 M2 amt*M1*CS 1 23751 23751 23751 0.291 0.590
 M2 amt*M2*CS 1 3270 3270 3270 0.040 0.842
 CS 1 84561 84561 84561 1.035 0.310
 amt*Pressure*Temperature
 CS amt*Pressure*Time 1 212868 212868 212868 2.607 0.107
 CS amt*Pressure*M1 1 34495 34495 34495 0.422 0.516
 CS amt*Pressure*M2 1 20299 20299 20299 0.249 0.618
 CS amt*Pressure*CS 1 12034 12034 12034 0.147 0.701
 CS 1 174636 174636 174636 2.139 0.144

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amt*Temperature*Time								
CS amt*Temperature*M1	1	535239896	535239896	535239896	6554.288	0.000	YES	
CS amt*Temperature*M2	1	4708	4708	4708	0.058	0.810		
CS amt*Temperature*CS	1	331	331	331	0.004	0.949		
CS amt*Time*M1	1	112874	112874	112874	1.382	0.240		
CS amt*Time*M2	1	1469	1469	1469	0.018	0.893		
CS amt*Time*CS	1	804	804	804	0.010	0.921		
CS amt*M1*M2	1	75785	75785	75785	0.928	0.336		
CS amt*M1*CS	1	22036	22036	22036	0.270	0.604		
CS amt*M2*CS	1	34743	34743	34743	0.425	0.515		
Pressure*Temperature*Time	1	950930	950930	950930	11.645	0.001	YES	
Pressure*Temperature*M1	1	18226	18226	18226	0.223	0.637		
Pressure*Temperature*M2	1	11544	11544	11544	0.141	0.707		
Pressure*Temperature*CS	1	67428	67428	67428	0.826	0.364		
Pressure*Time*M1	1	310071	310071	310071	3.797	0.052		
Pressure*Time*M2	1	10784	10784	10784	0.132	0.717		
Pressure*Time*CS	1	2008	2008	2008	0.025	0.875		
Pressure*M1*M2	1	12343	12343	12343	0.151	0.698		
Pressure*M1*CS	1	14220	14220	14220	0.174	0.677		
Pressure*M2*CS	1	67936	67936	67936	0.832	0.362		
Temperature*Time*M1	1	221695	221695	221695	2.715	0.100		
Temperature*Time*M2	1	38	38	38	0.000	0.983		
Temperature*Time*CS	1	10	10	10	0.000	0.991		
Temperature*M1*M2	1	24040	24040	24040	0.294	0.588		
Temperature*M1*CS	1	257092	257092	257092	3.148	0.077		
Temperature*M2*CS	1	848	848	848	0.010	0.919		
Time*M1*M2	1	53303	53303	53303	0.653	0.420		
Time*M1*CS	1	44080	44080	44080	0.540	0.463		
Time*M2*CS	1	7295	7295	7295	0.089	0.765		
M1*M2*CS	1	319669	319669	319669	3.915	0.049		
Error	382	31195094	31195094	81662.55				
Total	511	885328201						

In the Claims

Cancel claims 16-25.

Add the following claims.

26. A combinatorial chemical synthesis system, comprising a vessel having:
a charge port capable of sequentially receiving a plurality of discrete combinations of reactants;

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a reaction chamber in communication with said charge port, said reaction chamber being capable of receiving and enclosing the plurality of discrete combinations of reactants disposed linearly within said chamber; and

a discharge port in communication with said reaction chamber to sequentially discharge reaction products of said combinations from said reaction chamber.

27. The system of claim 26, wherein said reaction chamber is of a size adequate to receive a plurality of vials sequentially charged through said charge port and into said chamber.

28. The system of claim 26, wherein said charge port and said discharge port each comprises an air lock.

29. The system of claim 26, wherein said charge port and said discharge port each comprises an air lock controlled by a ball valve.

30. The system of claim 26, wherein said chamber is vertically longitudinal and is adapted to receive each of said combinations of reactants in a vial by sequential gravity loading from the charge port.

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~~31. The system of claim 26, further comprising a detector proximate said discharge port to detect said sequentially discharged reaction product from said reaction chamber.~~

32. The system of claim 26, further comprising a controller in communication with said reaction vessel to control varying reaction parameters within said chamber.

33. The system of claim 26, further comprising a controller in communication with said reaction vessel to control a sequence of charging said combinations of reactants to said chamber or a sequence of discharging said products from said chamber.

34. The system of claim 26, further comprising a detector in communication with said discharge port to detect said sequentially discharged reaction products and a processor in communication with said controller and said detector to correlate reaction or reactant variables with a corresponding reaction product.

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~~35. A combinatorial chemical synthesis system, comprising a vessel having:~~